

Jerry Thompson

From: "John Souza" <jsouza@ktainc.net>
To: "Jerry Thompson" <gat@alaskancopper.com>
Sent: Monday, March 15, 2010 6:18 PM
Attach: ATT00022.eml; Alaskan Copper Works Update.doc; Alaskan Copper Burn Table SOP Final.doc; treatment in process unit.pdf; process tank.pdf; J18105-1 UDS Level 2 Report Final Report.pdf
Subject: RE: Sample Results

Jerry,

Thanks for passing along the analytical results for the sample taken from the roll-off container, or at least, that is what I think it is.

However, I strongly feel that we need to get some further clarification from Shawn and his conversation with Ecology (refer to first attachment).

I have gotten some regulatory assistance and interpretation from a colleague I work with (Rick Griffith, who happens to be an environmental attorney experienced with RCRA and CAA issues)

I have a few more issues and questions concerning the overall plasma burning table cleaning process.

First, based on the information contained within the second and third attachments (2008 letter to Ecology and 2010 Standard Maintenance Procedure), it appears that the waste metal slag is being treated differently. In 2010, the mineralization (treatment) process took place on the table. In 2008, the slag was removed from the burn table before the "reagent" was applied. Is this correct?

The new treatment process raises the following regulatory question: Does the manufacturing process unit exemption apply to treatment in the process unit or is the treatment subject to the Treatment by Generator (TBG) and Large Quantity Generator (LQG) requirements? The attached interpretation (refer to fourth attachment) by EPA indicates that the manufacturing process unit exemption applies even if treatment occurs in the process unit.

If the toxic characteristic of the slag is removed before it is vacuumed from the burn table, then the EPA interpretation and Ecology's E-mail probably reduce the risk of enforcement to an acceptably low level without further confirmation. However, I note that the Standard Maintenance Procedure states that the "vacuum process will fully agitate the acid with the burn table materials." This suggests that the treatment/mineralization process may continue in the vacuum hose, vacuum reservoir, and roll-off container. See attached EPA letter (fifth attachment) concluding that hose lines leading from a process tank are subject to RCRA regulations. If the slag is not completely de-characterized before it is vacuumed (i.e., rendered non-hazardous), then Ecology could take the position in the future that the TBG requirements do apply. In that case, the E-mail conversation that Shawn had with Ecology would not protect Alaska Copper from an enforcement action.

Furthermore, in the analytical results (sixth attachment), the sample is identified as "Rolloff", which lead me to believe that the sample was taken from the roll-off container. If this is indeed the case, then Ecology could take the position that the TBG requirements do apply. If the sample had been taken directly from the table, then this would not be an issue.

Let me know how you would like me to handle this. I can either E-mail Shawn directly and copy you on it, or we could have a conference call to discuss.

Based on how this goes, we may need to have another conversation with Ecology. Or, maybe we can have Shawn send the Final SOP to Ecology for clarification and further agreement.

It may seem like some of the details I raise are a bit picky, but I want to make certain that this treatment process is handled in a compliant manner and that Alaskan Copper has nothing for Ecology to raise issue with.

Let's talk tomorrow, as we need to get this 100% straight before we start to have a conversation with Oregon (ODEQ).

Thanks, John

John M. Souza, P.E.
KTA Associates, Inc.
 800 5th Ave, Suite 4100
 Seattle, WA 98104
 206.447.1450 (Office)

3/16/2010

206.374.2279 (Fax)
(b) (6) (Mobile)
jsouza@ktainc.net (E-mail)
www.ktainc.net (Web)

From: Jerry Thompson [mailto:gat@alaskancopper.com]
Sent: Monday, 15 March, 2010 09:42
To: john souza
Cc: bgilant@paciron.com; dhr@alaskancopper.com; Shawn Estrada
Subject: Fw: Sample Results

Sir,

This is the analytical report from the most recent plasma burning table cleaning.

We wanted to switch the roll-off today, however when inspected it was determined that the material was still moist. I feel that Pacific Iron would be much happier if we waited and sent it to them a little dryer. So for the time being we are leaving the material in the dewatering box, and will reschedule to the non-dewatering box for next week.

If you have any questions please feel free to call or E-mail me anytime.

Jerry

----- Original Message -----

From: Estrada, Shawn
To: 'gat@alaskancopper.com'
Sent: Friday, March 12, 2010 12:04 PM
Subject: Sample Results

Good morning Jerry here are the results for the burn table slag, page three has your results, let me know if you have any questions.

Shawn Estrada
Field Service Specialist
Clean Harbors Environmental Services
19320 Des Moines Memorial Dr.
SeaTac, WA 98148
Office: 206.429.9127
Mobile: (b) (6)
Fax: 206.824.3507
estrada.shawn@cleanharbors.com

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3/16/2010

AKC-0019523



14434 SE Industrial Way, Bldg C, Clackamas, Oregon 97015 • Phone 503.785.0404, Fax 503.786.7877

May 28, 2008

Mr. Robert Reuter
Department of Ecology
Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008-5452

**RE: Alaskan Copper Works
Chrome Slag Waste Generation and Treatment by Generator Update**

Mr. Reuter,

On behalf of Alaskan Copper Works, Clean Harbors Environmental Services, Inc (CHES) is providing this update on the status of a recent treatment study and pilot test of chrome contaminated slag waste generated by Alaskan Copper Works.

Background

Alaskan Copper Works is a pipe fabricator located at 3200 S 6th Avenue in Seattle Washington. As a component in their fabrication processing iron and stainless steel plates are cut to form using a high temperature torch commonly referred to as a (plasma cutting table). Slag from the cutting operation drops into an underlying collection tray.

Historical sampling has revealed slag waste to contain TCLP chrome at or above the maximum concentrations listed under 40CFR Part 261.24 and therefore characterized as an EPA regulated waste (D007).

This waste is regularly removed from the cutting table collection tray several times a year using a vac truck and directly transferred into 55 gallon containers. These containers are then marked hazardous waste then dewatered over the course of a 90 period before being finally being manifested off-site to an EPA permitted TSD.

Generation volumes historical run between 40,000 pounds to 80,000 pounds annually depending on production rates.

In the Alaskan Copper 2007 pollution prevention plan update submitted to the Department of Ecology (Ecology) it was indicated that a treatability study and pilot test would be conducted on this waste stream under the standards in 2002 Technical Information Memorandum (TIM) #96-412 "Treatment by Generator".

CHES has recently completed treatability studies and pilot testing on a single run of waste slag generated earlier this year. The results of the pilot testing reveal successful treatment of all contaminants of concern to below regulatory levels.

Treatment Concept

Treatment offered by CHES involves a stabilization process known as mineralization. Mineralization is a method by which TCLP heavy metal contaminated media can be rendered into a non RCRA state by adding common chemistries directly into the media to create naturally occurring less toxic minerals.

Mineralization can be conducted in a variety of simple and cost effective ways and the results are instantaneous and verifiably irreversible. Through a chemical change called "Isomorphic Substitution".

This isomorphic property of the resulting mineral is the ability for similar ions or molecules having similar size and charge to interchange within the crystalline matrix without causing a change in the crystal structure or physical properties of the mineral. Although this property to interchange ions sometimes occurs naturally, isomorphism can be forced to occur given certain controlled environmental influences.

The isomorphic property of the mineral is irreversible. Once the mineral is formed it can only be broken down under extreme conditions. Any number of highly toxic ions can be placed permanently within the mineral structure making them nearly insoluble and significantly more resistant to leaching than typical stabilization techniques.

Although the exact formulation of the reagents applied in the chrome contaminated waste stream is proprietary in nature, CHES would be willing to provide additional technical data to Ecology under a confidentially agreement.

Pilot Project Information

In early January 2008 CHES provided oversight of the removal of approximately 15,000 pounds of slag waste from the plasma table holding tray. Prior to removal, the slag was partially dewatered to the limits of the collection tray wastewater holding tank. Slag was then removed from the table using a vac truck transferred to an on-site containment area where the contents were emptied into a 55 gallon container placed in secondary containment. Further dewatering was conducted by decanting free liquid and dispensing directly into the existing facility wastewater treatment process. The remaining solids were transferred into a plastic lined drop box equipped with a bottom mounted decanting filter where additional dewatering was completed.

On January 15, 2008 CHES collected and tested a composite sample of untreated slag waste to establish a treatment reagent mix design. The sample revealed chrome at or above RCRA regulatory limits of 5.0 ppm TCLP.

In March 2008, CHES applied a prepared reagent directly into the containerized dewatered slag waste which was then circulated through a vac truck to provide 100% contact then reloaded into the drop box. Over the next 30 days a composite and one grab sample was collected from treated slag and sent to an independent state certified laboratory for TCLP metals and LC50. The results were compared to the pre-treatment sample of the waste slag prior to the application of reagent. A summary of pre and post treatment test results are provided in Appendix A

CHES has determined that the resulting treated waste stream no longer exhibits the characteristics of RCRA hazardous waste or state dangerous waste as defined under 40CFR Subpart B and C as well as WAC 173-303-070.

All elements of the pilot project were conducted under a written health and safety plan with all equipment, including the vac truck, decontaminated with resulting flushate sent to the wastewater treatment system.

Non-Regulated Waste Slag Disposition

CHES will assist Alaskan Copper Works in developing a simplified methodology for dewatering and treatment that will reduce material handling while avoiding the generation of hazardous waste all together.

CHES will continue to conduct verification testing for each batch of waste slag generated during 2008. In every future situation, Alaskan Copper Works will pull one composite sample for RCRA 8 metals prior to determination and removal of treated slag off site.

Alaskan Copper Works intends to recycle all treated solid waste slag to local cement kilns as a raw material substitute under the Washington State sandblast grit recycling provisions.

Alaskan Copper Works will provide to any additional information deemed appropriate by Ecology prior to the off-site shipment of this first treated volume of solid waste.

Recordkeeping and Documentation

Alaskan Copper Works will retain all confirmation testing results and supporting documentation for all generated slag for a period of three years and will provide updated information in all subsequent Pollution Prevention annual reports

On behalf of Alaskan Copper Works, CHES is pleased to have received positive feed back from Ecology staff and is extremely appreciative of the technical support, comments and suggestions provided by Ecology during the course of this endeavor.

Please feel free to contact me should you have any questions concerning this matter.

Respectfully,

Matthew Dunn
Field Project Manager
Clean Harbors Environmental Services, Inc.
503-997-0339
dunn.matthew@cleanharbors.com

Attachments: Copies of Laboratory Test Results and QAQC

Appendix A

Pre Treated Testing Summary

Sample 1 1/15/08

TCLP	Lead	ND
	Cadmium	ND
	Barium	ND
	Silver	ND
	Arsenic	ND
	Selenium	ND
	Chromium	5.8

Sample 2 1/15/08

Fishkill	Concentration 10 mg/L	Mortality 0
	Concentration 100 mg/L	Mortality 0

Post Treatment Testing Summary (Bench Test)

Sample 1 1/22/08

TCLP Grab	Lead	ND
	Cadmium	ND
	Barium	ND
	Silver	ND
	Arsenic	ND
	Selenium	ND
	Chromium	0.41

Post Treatment Testing Summary (Actual)

Sample 2 4/15/08

TCLP Grab	Lead	ND
	Cadmium	ND
	Barium	ND
	Silver	ND
	Arsenic	ND
	Selenium	ND
	Chromium	.040

Sample 3 4/30/08

TCLP Composite	Lead	ND
	Cadmium	ND
	Barium	0.048
	Silver	ND
	Arsenic	ND
	Selenium	ND
	Chromium	0.061

Sample 4 4/30/08

Fishkill	Concentration 10 mg/L	Mortality 0
	Concentration 100 mg/L	Mortality 0

**Standard Maintenance Procedure
AKCBT-001 Burn Table Cleanout**

BURNING TABLE CLEANING

Approval Date: 02/25/2010

Revision Date: 01/11/2010

Number: AKCBT-001

Process: Burn Table Clean

SAFETY EQUIPMENT

Safety Tee
PPE

SPECIAL TOOLS REQUIRED

Cusco vacuum truck
6" Flex hose
20 Yard dewatering roll off box
2" double diaphragm pump
Air Compressor
Pressure Washer

MATERIALS REQUIRED

20'x100' roll of 6 mil plastic sheeting
Flat shovels
Spade shoves
Squeegee
Duct tape
Absorbent pads
Dewatering box filter liner
10 gallons of 60% phosphoric acid.

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

Gloves

Nitrile inner gloves with PVC outer gloves

**Standard Maintenance Procedure
AKCBT-001 Burn Table Cleanout**

Shoes	Rubber steel toe boots/ leather steel toe boots
Body	Tyvek coverall / Saranex Coverall
Face	Niosh approved safety glasses
Respiration	Full face APR with P100 cartridges or equivalent
Other	Ear Plugs

HEALTH HAZARDS

Due to the Cusco's high vacuum capabilities extreme caution is to be used when working around the end of the suction hose. Hands and body part should be kept clear of the end of the suction hose when in use.

6" flex hose filled with product is very heavy and may present lifting hazards

The chemical nature of the mineralization solution is extremely acidic, proper PPE, Level C, and care needs to be adhered to when handling this chemical.

The surface in the burn tables is water on steel and may present slip hazards.

TASK STEPS....

A. Job Set Up

1. Meet with on site personnel to ensure conditions are as expected, contents of the burn table are as discussed, and any system lines are locked and tagged out.
2. Techs to unload equipment and supplies.
3. Forman to fill out Hazardous Work Permit and conduct the tailgate safety meeting all attendees must sign the permit.
4. Techs to don assigned PPE. and complete setup of Vacuum System to Cusco

B. Burn Table Clean Out

1. Clean Harbors crew to verify system is fully de-energized, then lock out, tag out, try out.
2. Technicians will add approximately 1.2 gallons of 60% phosphoric acid per ton of material on the burn table.
3. Using the Cusco begin vacuuming the metal fines and residual liquids out of the burn table, ensuring the hose is positioned in a way that allows it to breathe.
4. Technicians will move the metal slag towards the hose with shovels and squeegees.
5. The vacuum process will fully agitate the acid with the burn table materials.

**Standard Maintenance Procedure
AKCBT-001 Burn Table Cleanout**

6. Technicians will test the PH of the collected materials when the PH is neutral, a PH of 6 to 8, the slag has been mineralized*.
7. Continue feeding the hose with material out of the burn table until all of the material has been pumped up, or until an Alaskan Copper representative feels the table is clean enough

Potential Hazards	Recommended Action or Procedure
Lifting Hazard	Be sure to use proper lifting techniques when moving full hoses or heave equipment seek help when possible.
Loud Noises	The Cusco generates a lot of noise when in use wear appropriate ear protection when working around the unit
Slip Hazards	Use caution working around wet floors and surfaces clean up as much water as possible to minimize slip hazards.
High Vacuum	Use a safety T on the 6" flex hose Keep hands, Feet and other body parts away from the end of the hose
Chemical Burn	The phosphoric acid used in the Mineralization of the metal fines is very acidic and should be handled with caution proper PPE, level C, is to be worn at all times when handling.

C. Waste Transfer

1. Line the dewatering box with a mesh filter liner
2. Put a ball valve fitting on the dewatering box
3. place a cap on the filling and ensure the valve is in the closed position
4. Place plastic sheeting on the ground in the area the transfer is to take place, pull the plastic up over the side of the dewatering box allow the end to drape over into the box.
5. Back the Cusco up to the side of the roll off where the plastic has been laid out open the back of the Cusco and begin slowly tipping the load into the roll off.
6. Continue slowly tilting the tanker back into the roll off until all the material has been dumped out in the roll off.
7. Then wash out Cusco into dewatering roll off until all slag is removed.
8. Remove the cap off of the ball valve fitting attach 2 inch hose and pump to the dewatering box and begin pumping off the water into a 275 gallon poly totes.
9. Continue until all liquid has been removed from Dewatering Roll off box and totes are pumped back to Alaskan copper's treatment system.
10. Pull an 8 ounce sample and submit to a state accredited lab for RCRA 8 TCLP.

Potential Hazards	Recommended Action or Procedure
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**Standard Maintenance Procedure
AKCBT-001 Burn Table Cleanout**

Lifting Hazard	Be sure to use proper lifting techniques when moving full hoses or heave equipment seek help when possible.
Loud Noises	The Cusco generates a lot of noise when in use wear appropriate ear protection when working around the unit
Slip Hazards	Use caution working around wet floors and surfaces clean up as much water as possible to minimize slip hazards.

D. Demobilization

1. Load all equipment back into trucks and take back to Facility.
2. Load all hoses and emergency equipment and fittings for Cusco back on to it.
3. Have Paperwork signed off by Foreman running job and give copy to customer.
4. Drive back to shop and unload all equipment.
5. Complete all necessary paperwork and turn in to FSR.

Potential Hazards	Recommended Action or Procedure
Lifting Hazard	Be sure to use proper lifting techniques when moving full hoses or heave equipment seek help when possible.
Slip Hazards	Use caution working around wet floors and surfaces clean up as much water as possible to minimize slip hazards.

E. Sending slag to Recycler

1. Schedule load into recycler.
2. After the slag has had time to fully dewater, approximately 2 to 5 days. Spot a low side roll off for transferring the slag out of the dewatering box into for the recycler.
3. Using a roll off truck, then pick up the dewatering box and dump into empty roll off. Remove the filter liner and dispose of properly.
4. Load up the roll off and take to recycler for unloading complete paperwork and get customer signature.
5. After complete return empty roll offs to the yard complete paperwork.

Potential Hazards	Recommended Action or Procedure
Lifting Hazard	Be sure to use proper lifting techniques when moving full hoses or heave equipment seek help when possible.

**Standard Maintenance Procedure
AKCBT-001 Burn Table Cleanout**

Loud Noises	The Cusco generates a lot of noise when in use wear appropriate ear protection when working around the unit
Slip Hazards	Use caution working around wet floors and surfaces clean up as much water as possible to minimize slip hazards.

9441.1989(54)

RCRA/SUPERFUND HOTLINE SUMMARY

OCTOBER 1989

2. Manufacturing Process Unit

An owner/operator of a military facility manufacturing explosives is in the process of cleaning out his manufacturing units (tanks). They are cleaned by rinsing and then by flashing or torching the inside of the unit. Is this tank required to be permitted under RCRA as a treatment tank, i.e., is this activity classified as open burning/open detonation?

This tank is classified as a manufacturing process unit and therefore is not subject to RCRA regulation. Because it is not a hazardous waste storage tank, it will not be regulated under the Subpart J standards of 40 CFR Parts 264 and 265. The waste inside a manufacturing process unit is not regulated until it exists the unit or until it remains in the unit (which has ceased operation) longer than 90 days, per 40 CFR Section 261.4(c). In this case, once the waste is removed by rinsing, it should be handled according to RCRA Subtitle C regulations, if it is hazardous waste.

The subsequent activity of cleaning out the manufacturing process unit by torching is not regulated under RCRA, if it takes place promptly. Once the unit ceases operation, the removal of residues must occur before 90 days are up; otherwise, removal could be regulated. Also, regardless of timing, if the operator removes any residues from the tank after burning, the residues may be subject to regulation if they are hazardous per RCRA Subtitle C.

Source: Ed Abrams (202)382-4787

Research: Mary Stevens

RO 13321

9483.1986(11)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DEC 19 1986

Mr. Hadley Bedbury
Senior Environmental Engineer
Diamond Shamrock Chemicals Company
1149 Ellsworth Drive
Pasadena, Texas 77501

Dear Mr. Bedbury:

Thank you for your letter of August 8, 1986, in which you raised several questions related to the final hazardous waste tank systems rules (51 FR 25422).

Your first question concerned the applicability of the secondary containment requirements to production tanks during periodic cleanouts. 40 CFR 261.4(c) states that "a hazardous waste which is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste-treatment-manufacturing unit is not subject to" the containment regulations "until it exits the unit in which it was generated, . . . , or unless the hazardous waste remains in the unit more than 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials." Thus, if you are able to clean out your process tank within 90 days after production or product storage is stopped, that process tank would not be considered a waste accumulation tank and, therefore, would not be subject to secondary containment standards. The waste removed, however, is subject to the hazardous waste control system if it is determined to be a hazardous waste.

A related question concerns the applicability of the hazardous waste tank system standards to process transfer equipment normally used for production purposes, but also used to transfer hazardous waste residue to either a NPDES wastewater treatment system or an onsite RCRA treatment/storage facility. Assuming it is removed within 90 days after production or product storage is stopped, the hazardous waste generated within product/raw material process tanks does not become subject to the hazardous waste tank system

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standards until it exits the unit in which it was generated. The tank system standards apply to ancillary equipment used to handle the hazardous waste during transfer from its point of origin to a hazardous waste storage/treatment tank. We consider the point of exit from the process tank to be the introductory point for the hazardous waste into a hazardous waste tank system. Therefore, any process transfer equipment, even if normally used for production purposes, that is also used to transfer hazardous waste residue during equipment washout/cleanout procedures to a hazardous waste storage/treatment tank, would be considered part of a hazardous waste tank system and thus subject to the standards for such. If the hazardous waste residue is transferred to a wastewater treatment tank that is exempted from the regulations under 264.1(g)(6), the hazardous waste tank regulations now appear to apply to the ancillary equipment. The Agency is considering whether to address this issue in the near future.

Another related question concerns hose lines that are normally used in connection with product storage but are also used as loading/unloading equipment for hazardous waste. During any hazardous waste transfer operation, EPA intends that appropriate controls and practice be provided to prevent the release of hazardous waste to ground water, surface water, or soil should a leak, spill, or other incident occur during the loading/unloading process. Prior to returning hose lines that were used for this purpose to their normal use in product storage, good practice would be to clean the hoses so that all hazardous waste residues are removed or decontaminated.

Another question addresses the applicability of the closed loop recycling exclusion under 40 CFR 261.4 to tanks that are used in the reuse of materials. Given your description of the process, these reused materials that result from the incomplete conversion of raw materials to final products, would not be defined as solid wastes and thus would not be hazardous wastes (see 40 CFR 261.2(e)(1) (iii)). Thus, such reused material would not be regulated under RCRA Subtitle C.

Finally, you questioned what effect future interpretation or guidance manuals would have on the acceptability of a certification made by an independent professional engineer prior to the availability of such guidance materials. EPA is developing a technical guidance manual to assist both permit applicants and permit writers in more fully understanding the revised tank system regulations. A notice of the availability of this guidance manual will be published, in the near future, in the Federal Register. A certifying engineer, in making an assessment of a tank system, must take into account all the factors listed in Sections 264.191 and 265.191 (for existing tank systems) and Sections 264.192 and 265.192 (for new tank systems). If a tank

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-3-

system is judged by an independent, qualified, registered professional engineer to be appropriate for the storage or treatment of hazardous waste, in accordance with the regulations, that certification should not be affected by guidance materials made available subsequent to the assessment.

If you need further clarification of these responses or if you have any additional questions, please call William Kline at (202) 382-7917.

Sincerely,

Joseph E. Carra
Acting Director
Waste Management Division

cc: Regional Hazardous Waste Branch Chiefs

RO 13790

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories Inc.

TestAmerica Seattle

5755 8th Street East

Tacoma, WA 98424

Tel: (253)922-2310

TestAmerica Job ID: 580-18105-1

Client Project/Site: Burntables

For:

Clean Harbors Environmental Services Inc

19320 Des Moines Memorial Dr

Bldg D, Suite 400

Seatac, Washington 98148

Attn: Shawn Estrada

Pamela R. Johnson

Authorized for release by:

3/11/2010 4:08 PM

Pam Johnson

Project Manager I

pamr.johnson@testamericainc.com

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Job Narrative
580-18105-1

1
2

Comments

No additional comments.

Receipt

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): The container label has the time listed as 09:15 (or 09:45). The COC has the time listed as 10:00.

All other samples were received in good condition within temperature requirements.

Metals

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Analytical Data

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Client Sample ID: Rolloff

Date Collected: 03/08/10 10:00

Date Received: 03/08/10 13:15

Lab Sample ID: 580-18105-1

Matrix: Solid

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.060		mg/L		03/10/10 11:24	03/10/10 16:47	1
Barium	0.071		0.010		mg/L		03/10/10 11:24	03/10/10 16:47	1
Cadmium	ND		0.010		mg/L		03/10/10 11:24	03/10/10 16:47	1
Chromium	0.14		0.025		mg/L		03/10/10 11:24	03/10/10 16:47	1
Lead	0.12		0.030		mg/L		03/10/10 11:24	03/10/10 16:47	1
Selenium	ND		0.10		mg/L		03/10/10 11:24	03/10/10 16:47	1
Silver	0.030		0.020		mg/L		03/10/10 11:24	03/10/10 16:47	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		03/10/10 12:02	03/10/10 16:00	1

Quality Control Data

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 580-59588/15-A						Client Sample ID: MB 580-59588/15-A			
Matrix: Water						Prep Type: Total/NA			
Analysis Batch: 59641						Prep Batch: 59588			
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.060		mg/L		03/10/10 11:24	03/10/10 15:36	1
Barium	ND		0.010		mg/L		03/10/10 11:24	03/10/10 15:36	1
Cadmium	ND		0.010		mg/L		03/10/10 11:24	03/10/10 15:36	1
Chromium	ND		0.025		mg/L		03/10/10 11:24	03/10/10 15:36	1
Lead	ND		0.030		mg/L		03/10/10 11:24	03/10/10 15:36	1
Selenium	ND		0.10		mg/L		03/10/10 11:24	03/10/10 15:36	1
Silver	ND		0.020		mg/L		03/10/10 11:24	03/10/10 15:36	1

Lab Sample ID: LCS 580-59588/16-A						Client Sample ID: LCS 580-59588/16-A		
Matrix: Water						Prep Type: Total/NA		
Analysis Batch: 59641						Prep Batch: 59588		
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	% Rec. Limits		
Arsenic	4.00	3.87		mg/L	97	80 - 120		
Barium	4.00	3.85		mg/L	96	80 - 120		
Cadmium	0.100	0.0981		mg/L	98	80 - 120		
Chromium	0.400	0.388		mg/L	97	80 - 120		
Lead	1.00	1.02		mg/L	102	80 - 120		
Selenium	4.00	3.95		mg/L	99	80 - 120		
Silver	0.600	0.583		mg/L	97	80 - 120		

Lab Sample ID: LCSD 580-59588/17-A						Client Sample ID: LCSD 580-59588/17-A		
Matrix: Water						Prep Type: Total/NA		
Analysis Batch: 59641						Prep Batch: 59588		
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	% Rec.	% Rec. Limits	RPD	Limit
Arsenic	4.00	3.83		mg/L	96	80 - 120	1	20
Barium	4.00	3.80		mg/L	95	80 - 120	1	20
Cadmium	0.100	0.0966		mg/L	97	80 - 120	2	20
Chromium	0.400	0.382		mg/L	96	80 - 120	1	20
Lead	1.00	1.01		mg/L	101	80 - 120	1	20
Selenium	4.00	3.90		mg/L	98	80 - 120	1	20
Silver	0.600	0.576		mg/L	96	80 - 120	1	20

Lab Sample ID: 580-18099-A-1-E MS						Client Sample ID: 580-18099-A-1-E MS		
Matrix: Solid						Prep Type: TCLP		
Analysis Batch: 59641						Prep Batch: 59588		
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	% Rec.	% Rec. Limits
Arsenic	ND		4.00	4.06		mg/L	101	50 - 150
Barium	0.11		4.00	3.83		mg/L	93	50 - 150
Cadmium	0.11		0.100	0.205		mg/L	94	50 - 150
Chromium	ND		0.400	0.403		mg/L	95	50 - 150
Lead	0.19		1.00	1.15		mg/L	96	50 - 150
Selenium	ND		4.00	4.05		mg/L	101	50 - 150
Silver	ND		0.600	0.608		mg/L	101	50 - 150

TestAmerica Seattle

03/11/2010

Quality Control Data

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 580-18099-A-1-F MSD

Matrix: Solid

Analysis Batch: 59641

Client Sample ID: 580-18099-A-1-F MSD

Prep Type: TCLP

Prep Batch: 59588

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	% Rec.	Limits	RPD	RPD Limit
Arsenic	ND		4.00	3.92		mg/L	97	50 - 150	4	20
Barium	0.11		4.00	3.81		mg/L	93	50 - 150	0	20
Cadmium	0.11		0.100	0.196		mg/L	85	50 - 150	4	20
Chromium	ND		0.400	0.400		mg/L	94	50 - 150	1	20
Lead	0.19		1.00	1.10		mg/L	91	50 - 150	4	20
Selenium	ND		4.00	3.91		mg/L	97	50 - 150	4	20
Silver	ND		0.600	0.607		mg/L	101	50 - 150	0	20

Lab Sample ID: 580-18099-A-1-D DU

Matrix: Solid

Analysis Batch: 59641

Client Sample ID: 580-18099-A-1-D DU

Prep Type: TCLP

Prep Batch: 59588

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	RPD	RPD Limit
Arsenic	ND		ND		mg/L	5	20
Barium	0.11		0.111		mg/L	5	20
Cadmium	0.11		0.114		mg/L	3	20
Chromium	ND		ND		mg/L	4	20
Lead	0.19		0.197		mg/L	4	20
Selenium	ND		ND		mg/L	29	20
Silver	ND		ND		mg/L	NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 580-59590/12-A

Matrix: Water

Analysis Batch: 59626

Client Sample ID: MB 580-59590/12-A

Prep Type: Total/NA

Prep Batch: 59590

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020		mg/L		03/10/10 12:02	03/10/10 14:54	1

Lab Sample ID: LCS 580-59590/13-A

Matrix: Water

Analysis Batch: 59626

Client Sample ID: LCS 580-59590/13-A

Prep Type: Total/NA

Prep Batch: 59590

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	Limits
Mercury	0.0200	0.0206		mg/L	103	75 - 125

Lab Sample ID: LCSD 580-59590/14-A

Matrix: Water

Analysis Batch: 59626

Client Sample ID: LCSD 580-59590/14-A

Prep Type: Total/NA

Prep Batch: 59590

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	% Rec.	Limits	RPD	RPD Limit
Mercury	0.0200	0.0204		mg/L	102	75 - 125	1	20

Lab Sample ID: 580-18099-A-1-I MS

Matrix: Solid

Analysis Batch: 59626

Client Sample ID: 580-18099-A-1-I MS

Prep Type: TCLP

Prep Batch: 59590

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	% Rec.	Limits
Mercury	ND		0.0200	0.0172		mg/L	86	50 - 150

TestAmerica Seattle

03/11/2010

Quality Control Data

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1



Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 580-18099-A-1-J MSD
Matrix: Solid
Analysis Batch: 59626

Client Sample ID: 580-18099-A-1-J MSD
Prep Type: TCLP
Prep Batch: 59590

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	% Rec.	Limits	RPD	Limit
Mercury	ND		0.0200	0.0171		mg/L	86	50 - 150	1	35

Lab Sample ID: 580-18099-A-1-H DU
Matrix: Solid
Analysis Batch: 59626

Client Sample ID: 580-18099-A-1-H DU
Prep Type: TCLP
Prep Batch: 59590

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	RPD	Limit
Mercury	ND		ND		mg/L	NC	35

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Lab Chronicle

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Client Sample ID: Rolloff

Date Collected: 03/08/10 10:00

Date Received: 03/08/10 13:15

Lab Sample ID: 580-18105-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
TCLP	Prep	3010A		1	59588	03/10/10 11:24	PAB	TestAmerica Seattle
TCLP	Analysis	6010B		1	59641	03/10/10 16:47	PAB	TestAmerica Seattle
TCLP	Leach	1311		1	59538	03/09/10 14:28	PAB	TestAmerica Seattle
TCLP	Prep	7470A		1	59590	03/10/10 12:02	PAB	TestAmerica Seattle
TCLP	Analysis	7470A		1	59626	03/10/10 16:00	FCW	TestAmerica Seattle

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Certification Summary

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Laboratory	Program	Authority	EPA Region	Certification ID	Expiration Date
TestAmerica Seattle	DoD ELAP	L-A-B	0	L2236	01/19/13
TestAmerica Seattle	ISO/IEC 17025	L-A-B	0	L2236	01/19/13
TestAmerica Seattle	NELAC Primary AB	Oregon	10	WA100007	11/06/09
TestAmerica Seattle	NELAC Secondary AB	California	9	1115CA	01/31/10
TestAmerica Seattle	State Program	Washington	10	C1226	02/17/11
TestAmerica Seattle	USDA			P330-08-00099	05/22/11

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

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Method Summary

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL TAC
7470A	Mercury (CVAA)	SW846	TAL TAC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL TAC = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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Sample Summary

Client: Clean Harbors Environmental Services Inc
Project/Site: Burntables

TestAmerica Job ID: 580-18105-1

Lab Sample ID	Client Sample ID	Matrix	Sampled	Received
580-18105-1	Rolloff	Solid	03/08/10 10:00	03/08/10 13:15

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☐ 1 Hill Avenue, Braintree, MA 02184

Tel. (781) 849-1800

☐ RTE. 2, Box 170, Waynoka, OK 73860

Tel. (580) 697-3500

12400 247th Avenue SE, Sawyer, ND 58781

Tel. (701) 624-5622

□ 2202 Genoa Red Bluff Road, Houston, TX 77034 Tel. (281) 478-7700

5295 S. Garvey Road, Westmorland, CA 92281 Tel. (760) 344-9400

☐ Other

18105

Client: Alaskan Copper

Project Name: Buntables

Work Order/P.O. #: _____ Date: 3-08-10

Report To: Shawn Estrada

Address: _____ Phone #: _____

[illegible]

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CH 119

$R = 20.3$
Client drop: no cooler

Login Sample Receipt Check List

Client: Clean Harbors Environmental Services Inc

Job Number: 580-18105-1

Login Number: 18105

Creator: Blankinship, Tom

List Number: 1

List Source: TestAmerica Tacoma

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	no ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Time on label reads 0915(or 0945)
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	N/A	

TestAmerica Seattle